# The iPhone 5 and Interoperability

The substantial expansionary impact of carrier-specific versions of the then imminent LTE-capable iPhone was clearly identified in Information Age Economics' (IAE) FCC filing of July 10, 2012 in this Proceeding.[1] This prediction is now borne out by recent developments following the announcement on September 12 of separate AT&T and Verizon models of the iPhone 5[2].

In order to mitigate the impact of carrier-specific LTE-capable iPhones, IAE recommended in July that all iPhones sold in the U.S. should at least be required to support the interoperable AWS band. Verizon opposed this requirement[3]. The AT&T iPhone model 5 does include the AWS band among the frequencies it supports[4]. However, the Verizon model does not, although it does include the cellular 850 MHz band and the PCS extension band that accommodates Sprint Nextel's initial launch of LTE. It is Verizon, not AT&T, which has been most vociferous and aggressive in the context of its spectrum acquisition from four major cable operators, along with related spectrum transactions, in proclaiming its need for as much bandwidth as possible in the AWS band, and its intent to deploy LTE rapidly in this band in order to complement its 700 MHz LTE network.

We can think of two possible explanations for this failure of Verizon to secure support for AWS in the iPhone 5 model it will offer to its customers. First, perhaps the Verizon engineers and sales and marketing staff working with Apple were not in contact with Verizon's plans and need to acquire more AWS spectrum. Second, Verizon is insincere in its claims of the need for, and value of, AWS spectrum.

We are not aware of any plans announced by Verizon to deploy LTE in its 850 MHz frequencies in the next few years. The priority given to this band over AWS in the Verizon iPhone 5 is a strange choice, given the obvious interests of Verizon's customers. Whatever the reason for this oversight, customers will therefore not have access to Verizon's future AWS-based LTE capacity, which will allegedly be needed in the densest customer and traffic areas, perhaps as early as 2013.

Both AT&T and Verizon are asserting themselves, as the launch of the iPhone 5 demonstrates, to expand non-interoperability (to our knowledge uniquely in the world) in the LTE space in the U.S. as rapidly and as widely as possible. At the end of the second quarter of 2012, Verizon announced that it had 10.9 million non-interoperable LTE devices on its network[5] . There are also a smaller number of non-interoperable LTE devices on the AT&T and Sprint networks. The apparently enormous success of the iPhone 5 pre-orders has led analysts to estimate that iPhone 5 will have worldwide sales of 50 million units by the end of 2012. Analysis of sales of earlier models reveals that 30% of worldwide iPhone sales occurred in the US. On this basis, we estimate that by the end of 2012 an additional 15 million non-

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[1] http://apps.fcc.gov/ecfs/document/view?id=7021985417
[2] "iPhone 5 launches to record sales," http://www.ft.com/cms/s/0/39e3abac-00ce-11e2-8197-00144feabdc0.html
[3] Joint Opposition, http://apps.fcc.gov/ecfs/document/view?id=7021989854
[4] http://www.apple.com/iphone/specs.html
[5] Verizon 2nd Quarter 2012 Earnings Results Slide Presentation, July 19, 2012.

interoperable LTE iPhone 5s will have been sold in the US . Due to this rapid adoption of iPhone 5s, a conservative estimate of the number of non-interoperable LTE devices in the US (including non-Apple, primarily Android-based LTE smartphones) at the end of 2012 - just over 3 months from now - is approximately **30 million**. Absent prompt and decisive action by the FCC to stem this tide, along the lines suggested in the IAE filing of July 10, non-interoperability will become an irreversible characteristic of the U.S. LTE environment to the detriment of both customers and effective competition in the mobile broadband market.